

REMARKS

Entry of this amendment and reconsideration of this application are respectfully requested.

Claim 22 has been amended to address the issue raised in item 1 of the office action.

Claims 22-43 were rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Shekhter. Applicants respectfully traverse.

Objects of Shekhter are said to include providing a new approach to the production of high performance capacitor grade tantalum and niobium powders by eliminating traditional double salt reduction and follow on processing; to provide improved metal forms, and enable a continuous production process, and to provide niobium/tantalum alloy powders of capacitor grade quality and morphology. (See col. 3, lines 45 to 55)

Shekhter describes his solution to overcome these objects at col. 5, lines 18-45, which describes an embodiment that provides a two-stage reduction process by steps (a)- (d) as set forth below:

A second embodiment of the invention provides for a two-stage reduction process, comprising the steps of:

(a) providing an oxide or mixed oxide of the metal(s), the oxide being in a form that is traversible by gas,

(b) passing a hydrogen containing gas, alone or with gaseous diluent, through the mass at an elevated temperature in a manner for partial reduction of the oxide(s),

(c) the porosity of the oxide, temperature and time of reduction reaction being selected to remove at least 20% of the oxygen contained in the oxide to produce a suboxide,

(d) reducing the suboxide with reducing metal(s) and/or hydrides of one or more reducing metals, thereby substantially completely reducing the oxide to free the metal portion thereof.

Preferably the reducing metals and/or metal hydrides are brought into contact with the suboxide in gaseous form.

Preferred reducing metals in the second reduction step of this second embodiment are Mg and/or Ca and/or their hydrides. Particularly preferred is Mg.

Reduction temperature preferably (for Mg) is selected between 850° C. up to normal boiling point (1150°C.)

A primary difference between Shekhter and the presently claimed invention that Shekhter requires deactivation of the reduced metal with oxygen as set forth at Col. 7, lines 21-27 which is reproduced below:

After the reduction whether according to the one-stage or to the two-stage reduction process to metal is complete, the metal is cooled, and the inert gas is subsequently passed through the reactor with a gradually increasing content of oxygen in order to deactivate the metal powder. The oxides of the reducing metals are removed in the manner known in the art by washing with acids.

In this regard, the Examiner's attention is also drawn to Examples 2 and 11 of Shekhter.

As set forth at page 1, lines 25 to 32 of the present application, the presently claimed invention is designed to overcome problems with high requirements placed on the reliability of products such as airbag detonators by providing batch to batch reproducibility of the powders. the presently claimed invention is also directed to providing metal powders and metal hydride powders having, among other things, a burning time of 4 s per cm to 3000 s per cm with ignition points of from 160°C to 400°C (See page 2, lines 27-32).

As noted at page 5, lines 5-17, it has been discovered that targeted selection of the oxidic raw materials with the properties mentioned above as well as others are possible which yield powders with reproducible burning times an ignition points, which are important characteristics for powders that will be used in many devices, especially in car airbags which are vitally important to the safety of the driver and passengers of a vehicle.

In view of the foregoing, the 35 U.S.C. §103(a) rejection of claims should be withdrawn.

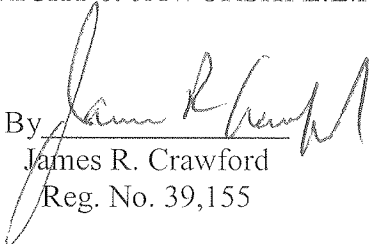
The Examiner's attention is also drawn to claim 44, which does not recite Nb or Ta, and to claim 45, which recites the steps of claim 22 but sets forth that the steps must be conducted sequentially..

In view of the foregoing, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-DNAG-313-US.

Respectfully submitted

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